WHAT IS CLAIMED IS:

1.   A locomotion interface that provides input signals, indicative of a user's movement, to a virtual reality system, the locomotion interface comprising:

a pressure-sensing mat including a base layer, a plurality of pressure sensing elements formed over the base layer, and a top layer formed over the plurality of pressure-sensing elements, wherein the plurality of pressure sensing elements output signals indicative of pressure applied to the top layer.

2.   The locomotion interface of claim 1, wherein the plurality of pressure-sensing elements make up a grid.

3.   The locomotion interface of claim 1, wherein the plurality of pressure-sensing elements comprise force sensitive resistors.

4.   The locomotion interface of claim 1, wherein the base layer comprises a semi-rigid material.

5.   The locomotion interface of claim 1, wherein the base layer comprises plastic.

6.   The locomotion interface of claim 1, wherein the top layer comprises rubber.

7.   A virtual reality system comprising the locomotion interface of claim 1.

8.   A virtual reality system that transposes a user's position and movement in real space to virtual space, the virtual reality system comprising:

a locomotion interface that outputs signals indicative of a user's position in real space, the locomotion interface including a pressure-sensing mat including a base layer, a plurality of pressure sensing elements formed over the base layer, and a top layer formed over the plurality of pressure-sensing elements, the plurality of pressure sensing elements output signals indicative of pressure applied to the top layer;

a virtual reality processor that uses the signals output by the locomotion interface to produce an output indicative of the user's position in the virtual space corresponding to the user's position and movement in the real space; and

a display that uses the output from the virtual reality processor to produce an image of the virtual space.

9.   The virtual reality system of claim 8, wherein the display is a head mounted display.

10.   The virtual reality system of claim 8, wherein the plurality of pressure-sensing elements make up a grid.

11.   The virtual reality system of claim 8, wherein the plurality of pressure-sensing elements comprise force sensitive resistors.

12.   The virtual reality system of claim 8, wherein the base layer comprises a semi-rigid material.

13.   The virtual reality system of claim 8, wherein the base layer comprises plastic.

14.   The virtual reality system of claim 8, wherein the top layer comprises rubber.

15.   The virtual reality system of claim 8, wherein the virtual reality processor comprises:

        a pattern generator that uses the signals output from the locomotion interface to generate a plurality of corresponding patterns;

        a motion identifier that uses the plurality of patterns generated by the pattern generator to identify a corresponding plurality of user positions and user movements; and

        a virtual environment renderer that uses the identified user positions and movements to generate a virtual space such that the user can effect, and be effected by, the virtual space.

16.   The virtual reality system of claim 15, wherein the plurality of positions identified by the motion identifier comprise at least one of a prone user position, a crawling user position, and a standing user position.

17.   The virtual reality system of claim 15, wherein the plurality of motions identified by the motion identifier comprise at least one of a backward user motion, a sideways user motion, a forward user motion, and a diagonal user motion.

18.   A method of providing input signals, indicative of a user's movement, to a virtual reality system, comprising:

        sensing pressure applied to a locomotion interface having a pressure-sensing mat including a base layer, a plurality of pressure sensing elements formed over the base layer, and a top layer formed over the plurality of pressure-sensing

19.   The method of claim 18, further comprising:

processing signals output by the locomotion interface, in response to the sensed pressure, to produce an input signal indicative of the user's position in virtual space corresponding to the user's position and movement in real space.

20.   The method of claim 19, wherein the step of processing the signals output by the locomotion interface comprises:

generating a plurality of patterns that correspond to the signals output by the locomotion interface; and

identifying a plurality of user positions and user movements that correspond to the plurality of patterns.